GARDEN AND FOREST.

PUBLISHED WEEKLY BY

THE GARDEN AND FOREST PUBLISHING CO.

OFFICE: TRIBUNE BUILDING, NEW YORK.

Conducted by . . . . . Professor C. S. SARGENT.

ENTERED AS SECOND CLASS MATTER AT THE POST OFFICE AT NEW YORK, N. Y.

NEW YORK, WEDNESDAY, MAY 28, 1890.

TABLE OF CONTENTS.

PAGE.

EDITORIAL ARTICLES:—The Preservation of Natural Scenery.—The Pine Supply of the United States. 257
The Major Oak. (Illustrated.) 258
Forestry and Economics 258
Horticultural Education . . . . . *Professor L. H. Bailey.* 259
Plans for Small Places. (Illustrated.) . . . . . *F. L. O.* 259
Notes on North American Trees.—XVII . . . . . *Professor C. S. Sargent.* 260

FOREIGN CORRESPONDENCE:—London Letter . . . . . *W. Watson.* 260

CULTURAL DEPARTMENT:—Orchard Experiences.—V . . . . . *T. H. Hoskins, M.D.* 262
Notes on Shrubs . . . . . *J. G. J.* 262
Spring Flowering Iris . . . . . *F. W. Burbidge.* 264
Notes on American Plants . . . . . *F. H. Horsford.* 264
Hardy Plants for Cut Flowers.—VI . . . . . *E. O. Orpet.* 264
Seasonable Hints, The Flower Garden . . . . . *P. O.* 265

THE FOREST:—Forestry in Northern Ohio . . . . . *J. W. Pike.* 265

RECENT PUBLICATIONS 266

CORRESPONDENCE:—Orchids in New Brunswick, New Jersey . . . . . *A. Dimmock.* 267
The Rest of Plants . . . . . *Maxwell T. Masters, M.D.* 267

NOTES 267

ILLUSTRATIONS:—Outline Plans of Four Small Places, Fig. 39 261
The Major Oak, Sherwood Forest 263

The Preservation of Natural Scenery.

THAT pleasing natural scenery has a positive value of its own is a proposition which will hardly be disputed, and yet few persons seem to realize that, if this is true, the destruction of such scenery must be a loss to the common wealth. Occasionally a community comes to understand that a placid, forest-bordered lake or a mountain stream tumbling through a gorge is not only a delightful possession, but gives an additional pecuniary value to all surrounding property. Now and again we hear of a rural community which, without any sordid motive, forms a generous trust to purchase some charming natural object to protect it from being vulgarized or destroyed, and to hold it free for public enjoyment forever. The preservation of Chittenango Falls (see vol. ii., page 373) affords a conspicuous example of this enlightened public spirit which cherishes natural beauty as an inheritance which should, if possible, be handed down without impairment to posterity. As a rule, however, no organized effort is put forth to protect these picturesque places from invasion, and one by one, especially in the more thickly settled parts of the country, the axe and fire, or the equally destructive holiday picnic, is robbing them of every element which makes them poetic or refreshing to the spirit.

A few weeks ago Mr. Charles Eliot invited attention in these columns to several fragments of the primitive New England wilderness which still survive within ten miles of the Boston State House. One of these is the steep moraine, upon which are grouped the great Waverly Oaks (page 85); another is the remnant of a Pine-wood; a third is a dark stream, over which, from rugged banks, hangs a forest of Hemlocks, and there are other bits of scenery equally characteristic and attractive. But even if there was a manifest desire to save these and other examples of unsophisticated nature, it would be difficult to do so under existing laws. The Chittenango Reservation was authorized by special act of the Legislature, although in this state a general law has been enacted to provide for a body corporate with the power of succession, and authority to acquire lands and hold them forever for public use. A movement is now on foot in Massachusetts to "facilitate the preservation and dedication to public enjoyment of such scenes and sites as possess uncommon beauty or historical interest," under the auspices of the Appalachian Mountain Club. The scheme looks to the establishment of a Board of Trustees empowered to acquire parcels of real estate, and to hold them, free of taxes, open to the public. It was in the interest of this movement that a noteworthy meeting was held in Boston on Saturday last, at which a committee was appointed to perfect a plan under which it is hoped that private generosity will be able to rescue from danger many scenes of natural beauty and hold them for the enjoyment of coming generations.

The Yosemite Valley, the Yellowstone Park, the Niagara Reservation are examples of what government may attempt in this direction; but still more effectual than government aid would be an enlarged appreciation by the great body of the people of the soothing and uplifting value of beauty and grandeur in natural scenery. Such an appreciation would manifest itself not only in securing land for city parks or in saving to some town its deep glen, cool with falling water, tree-shaded and fern-embroidered. It would ensure for the parks proper planning and maintenance, and for the glen not only the mere preservation of its native graces, but the addition of a new charm to every feature by skillful and reverent treatment. It would be felt not only in a few isolated acres specially guarded by law, but over the whole face of the country. It would protect many a mountain slope from being scarred by railroads, when they could have been constructed as well without defacement of the scenery. It would be seen in the preservation of every pleasing prospect and in the treatment of every country roadside. But until there is a public conscience to protest against the obliteration of natural beauty wherever found, these efforts to save a little here and there deserve the active and hearty co-operation of all forward-looking and public spirited citizens.

IN a recent communication on the proposed changes in our tariff on lumber made to the *Canadian Journal of Commerce*, Mr. William Little, of Montreal, one of the best informed lumber-men of America, discusses the present condition of the standing pine in the states of Michigan, Wisconsin and Minnesota, once the chief source of the pine supply of the United States, and reaches the conclusion that the great White Pine-forests of this country have vanished practically for all commercial purposes. He takes, as an illustration of his position, the Pine-forests of the lower peninsula of Michigan, in which it was estimated by the officers of the United States Census that there were standing in 1880 29,000,000,000 feet of merchantable White Pine. In 1889 the editor of the *Chicago Timberman* made an investigation of the merchantable pine standing in the same region and found only 3,000,000,000 feet. Some of this was cut last winter, so that, if these figures are correct, there is not now pine enough in the lower peninsula to supply the saw-mills of the state for more than six months. It should be remembered, however, as Mr. Little points out, that there are still left gleanings from third or fourth cut burnt-over stump-lands which produce grades of lumber of very inferior quality, some Red Pine and some inferior Hemlock, which may keep the mills running for a short time.

Mr. Little then assumes that it is fair to suppose that the census estimates of pine standing in Minnesota, Wisconsin and the upper peninsula of Michigan were as nearly correct as experience has shown those of the lower Michigan peninsula to have been, and, taking the census figures of 55,170,000,000 and deducting the amount which has been cut during the last ten years, 37,451,341,338 feet—the figures recently prepared by the *North-western Lumberman*—he finds only about 20,000,000,000 feet standing in the

three states, from which must be deducted the cut of last winter, rather more than 8,000,000,000, leaving a little over two years' supply of standing pine in the whole of the north-west.

Correct estimates of standing timber are exceedingly difficult to make and to verify, but by a system of averages extending over very large areas comparatively accurate results can be obtained, and it is not probable that the figures given above vary very far from the truth. They are not needed, however, to prove that the time is at hand when the north-western states will cease to be great lumber producers. This is abundantly shown by the fact that the most intelligent lumbermen of that region have for several years been engaged in securing great bodies of Pine-timber in the southern states, and of Spruce and Redwood on the Pacific coast. The increased number of destructive fires in saw-mills all through the north-western states, which have been noticed during the last two or three years, is another infallible sign that their business is approaching the end.

There is no hope that these great forests, which have been wasted as forests have never been wasted before, will ever be reproduced. Their end finishes the prosperity of a large section of the country and marks a period of folly and extravagance which seems, as we look back on it, simply incredible. And yet these forests, if they had not been called upon to yield annually more than their natural yearly increase, and if they had not been wasted by needless fires, might have been productive forever, and insured permanent wealth and prosperity where ruin now stares the community in the face. National calamities like the extermination of our Pine-forests are slow in making themselves felt, and the closing of a saw-mill and the ruin and abandonment of a town have, at first perhaps, only local significance. In the end, however, the country wakes up to the fact that a few men have made themselves enormously rich, and that nothing is left but blackened stumps and barren soil to show where once forests existed; and that one of the principal sources of national wealth has gone forever. The exhaustion of the copper and iron ores of Michigan would be a far less serious blow to the prosperity of that state and of the country at large than the destruction of her forests of Pine, and yet for ten years the American people, fairly warned of what was coming, have sat quietly by and looked with barely a word of protest against the extermination of the forests in every part of the country.

The Major Oak.

THE "Major Oak" (see p. 263) is in the best state of preservation of any of the very old Oaks for which Sherwood Forest, in England, is famous; and it is one of the noblest, most vigorous and best preserved of the old historical trees of Europe. It is believed to be one of the oldest trees in England. Beneath its spreading branches King John may well have reposed six hundred years ago, after the fatigues of the chase. Robin Hood and his merry men must have known it well. Since this tree grew to goodly size, great things have happened in the world—the Crusades, the War of the Roses, the discovery of the New World; it has seen the monarchy of England go down before Cromwell and the Covenanters, its restoration and the final fall of the Stuarts, the advent of Protestantism, the birth of science, and all the growth and development of the last two hundred years which have made the greater Britain of the nineteenth century. Here it has stood, stretching out its sturdy arms while the centuries rolled by. Think what England was when the acorn from which this tree has grown dropped to the ground, and then consider what it is to-day! Think what this tree has seen and survived, and it will not be found easy to contemplate it except with awe and veneration. In all England there is not one other thing which has changed so little in the past five hundred years; unless, indeed, it be some other Oak-tree or some of those ancient Yews which, in England, are more venerable and more unchanging even than the Oaks themselves.

Our portrait is interesting, too, for it shows the habit and appearance of a very old and well preserved European Oak, which our readers will be able to compare with the old Oaks which are found occasionally in this country, although we can hardly hope to match the "Major Oak" with an Oak of equal size in the northern states. There are, however, Live Oaks in the south and in California which exceed it considerably in girth of trunk and spread of branches. The "Major Oak" has always had, fortunately, room enough to grow in, and it is in a soil which is capable of producing large and long-lived trees. The trunk measures thirty-two feet in circumference just above the roots; five feet above the ground it girths thirty feet; the branches have a spread two hundred and forty feet across; numerous roots spread out, partly above the surface of the ground, for a distance of thirty feet from the trunk. The foliage is healthy and abundant, and shows that the tree is still in excellent condition, although the trunk has been hollow from time immemorial. The cavity is now seven feet in diameter and ten feet high.

The "Major Oak" stands in that part of Sherwood Forest which is known as "Birkland," on account of the presence of large numbers of Birch-trees growing among the Oaks. It is not very far from the village of Edwinstowe, outside of Thorsby Park, and on the property of the Duke of Portland.

Forestry and Economics.

AS a subject for economical discussion, forestry was hardly thought of in this country twenty years ago, but now one can hardly read a book or an article which treats in a broad way any question of economic science without finding the present state and future prospects of our forests used to illustrate or enforce the argument. Professor H. C. Adams, of Michigan and Cornell Universities, in his masterly financial treatise, "Public Debts," has this to say:

"It is an historical rule of wide application, that as countries become more populous and the social and industrial relations more complex, the functions of government must necessarily extend to continually new objects. This rule holds good now and in this country, and, in consequence, the question of the residence of new powers becomes more important year by year. Consider, as a simple illustration, the increasing necessity for care of the forests. The frequent recurrence of floods; the more rapid and marked alternation of drought and wet; the progress of farming toward the exhaustion of lands; all point clearly to the fact that the people of this country must soon turn their attention to the culture of trees. But this is a line of enterprise that individuals will not enter upon, because the returns in dividends are too remote from the first investment. It is a legitimate sphere for the employment of public credit, and the only remaining question is: Shall the enterprise be undertaken by the central government or by the local governments?"

In an article on the fall of the rate of interest, especially on securities of the best class, in a recent number of the *Popular Science Monthly*, George Iles says: "Does not cheap and abundant capital make it possible to conserve the Adirondacks as a state park, and as the source of the principal rivers of New York, and to establish a national system of afforestation?" The drift of Mr. Iles' argument is that while the rate of interest remained high there was no inducement to invest capital in an enterprise from which the return was so remote and so moderate. But the present rate of interest and its probable reduction to still lower figures make it necessary for capitalists to seek investments which would hardly have been considered a few years ago. The careful management of forest-property will yield an assured income and the time is at hand when it will offer fair attractions as compared with other fields of enterprise.

"A park is Nature made more beautiful, a garden is an enlargement of the house. Here should be convenience, decoration, nice care, and as much elegance as the owner's means will allow. The turf should seem a soft carpet bedecked with flowers; here should be found the rarest and most beautiful foreign plants, strange animals, birds of bright plumage, gay garden seats, refreshing fountains, cool shadows in thick-planted walks."—*Pückler-Muskau*, 1834.

Horticultural Education.

IT is not strange that there should still be those who question the value of a special education for the horticulturist. Similar doubts were once held concerning education in general, and they have arisen with each new enlargement or extension of educational methods; in fact, they have been dispelled only when experience has proved them groundless. These doubts no longer exist in regard to those technical subjects which were first taught in colleges; but college training in horticulture is of such recent date that it has enjoyed slender opportunity to prove its value. All analogy, however, insists that its results must be good. Much horticultural instruction is, no doubt, incompetent, and all of it is certainly incomplete; but the subject is capable of elucidation and application to the student. Teachers are largely self-taught, even in elementary principles, and lack the breadth of view which enables them to epitomize and generalize; a coming generation of teachers, starting with fundamental knowledge and with enthusiasm, must reap great harvests. Most of our teachers have had little practical experience, both for the reason that they are largely young men and from the fact that no institution yet exists in the country where diversity of good practice together with mental training can be secured. This much I have said by way of apology for what horticultural teaching has not accomplished; but the faults are not vital, but wholly incidental to new ventures.

Much of the disaffection concerning college training comes from a misconception of the relation which education bears to the man. Education does not make the man; it only influences him. Education builds upon the mental quality of the student, and that original quality largely determines the value which an education possesses. This fact is illustrated to every teacher who sees students going out from his instruction; one makes his mark, while his seat-mate, with equal facilities, accomplishes little. But this fact is not a disparagement of education, for it is no doubt true that both are better for their training. But whether the education pays its cost, depends upon the industry and faithfulness of its possessor. Education is simply capital invested; and no two investments are of equal value to their owners.

Disaffection is due also to the fact that a special education is commonly confounded with a trade. It is the aim of our modern technical trainings to attain both these ends, but they are not necessarily correlative. In fact, just here is where the present widespread discussion of horticultural education turns. The "rule o' thumb" should be learned before one enters college; it should be a part of a boy's bringing up. Or, if he has not had the proper bringing up, he must attain this simple handicraft as an auxiliary to his education; and it usually happens that our colleges are not sufficiently equipped with apparatus and instructors to give adequate instruction in all these directions. The teachers of horticulture all exercise the greatest care that instruction in handiwork shall be prominent, and this is essential, not so much, however, to develop skill in handicraft as a continual illustration of the interdependence of precept and example. But it is too much to expect that a youth whose mind is reaching eagerly for knowledge should acquire in the detached hours of a two or four years' training what an apprentice, who does little mental work, is expected to acquire in four or more years of steady application. Yet many writers seem to expect even more than this. In other words, a student should not be sent to college for the purpose of learning how to hold a plow, how to make a cutting or how to pot a plant. Hercules should not be called upon until there is something heavy to lift.

But, as a matter of fact, many young men are sent to college for this very purpose. I asked a class of sixty-four students how many had ever seen the operation of budding performed. One raised his hand. The other sixty-three were given instruction in budding so far as one man with less than two hours a day to devote to the labor could instruct such a number before the bark upon the Peach-trees "set." And many of them were the sons of fruit-growers! I often wonder how many of them derived any profit from the operation!

It is too much to expect that the student is to acquire a full trade in college. College work broadens him, strengthens him, inspires him; and the knowledge, which is everywhere incidental to his course, is always of practical use to him. If he does not learn how to bud while in college, he ought to be able to acquire the art quicker and grasp it more intelligently than if he had not had the training. Some one remarks that a college training does not teach a youth how to handle some new plant, that it does not enable him at once to discern its requirements. This is certainly true, but training does not make him less able to discern them. Such matters are wholly empirical, and must be learned by the doing. But I should expect the educated young man to discern more readily than another, or, at least, to acquire a more complete knowledge of the matter, if both had possessed equal powers to start with. The illustration, however, is trivial. A college training is not meant to enable a youth to drive a nail without danger of pounding his fingers.

Comparisons are often drawn between graduates and ignorant men who are skilled in some particular work. Such comparisons are fallacious because they contrast things wholly unlike—mental training and mere handicraft. A graduate may not have had opportunities for learning that particular thing, but there are a hundred other things which he can do better than the workman. There are thousands of men who are more skillful in certain things than any professor of horticulture. There are thousands of men on the streets of Paris who can speak French more fluently than many professors of language.

But, after all, shall we hire college men for our gardeners? That depends upon what a gardener is wanted to do and know. If you want him simply to grow Lettuce, let the college man alone, for he has ambitions above you. If you want him to manage your place with tact and judgment, and grow Lettuce at the same time, you may find him better. If you find some uneducated man to suit, you will soon hear yourself remarking, "What a pity that man could not have had an education!" for you will feel that education ought to have made him still better. I know of many college-bred men who make the best of farmers and gardeners. And I know of a few who are failures; I often wonder what would have become of them if they had known less! But this whole comparison of the graduate with the apprentice is invidious. A man is valuable simply for what he is, not for what has made him.

Cornell University. *L. H. Bailey.*

Plans for Small Places.

PLANS of four small places are herewith presented (see page 261), each showing exercise of judgment in the adjustment of buildings, roads and walks to special local circumstances. The problem in each case was to so manage the constructions necessary to convenience as to mar as little as possible whatever natural landscape advantages the situation possessed.

In the case of No. 1, outlooks to the west and south were limited by buildings and trees on the opposite sides of the streets. By placing the house, stables and yards near the streets, room was made for a symmetrical and comparatively spacious and sheltered lawn to the eastward. The more important rooms of the house look over a terrace upon this lawn.

In the second example the view northward toward the street is limited, while to the southward a superb distant prospect will be permanently commanded. The object has been to so place the stable, and the stable, kitchen and laundry yards, that they would not break in upon the southern outlook, while leaving the largest space of unbroken lawn in direct view from the principal rooms that could be reconciled with convenience. Walls overgrown with creepers keep the yards out of sight from the approach road.

The third case is that of a narrow lot between two streets not parallel one with the other. There is no distant prospect to be considered; but, again, the leading motive of the plan is to obtain as much unbroken lawn space as practicable, especially on the sheltered south side. The kitchen, kitchen-yard, stable and stable-yard, and the carriage-approach, are worked snugly into the north-west quarter of the place, and the principal rooms look upon pleasing, though confined, domestic, local scenes to the north-east and to the south.

The fourth sketch illustrates a cramped, tilted and otherwise difficult situation near the top of a steep hill, the lot being bounded on three sides by public streets. The position is elevated and a fine distant view will be under permanent command to the south-east. From the point A to the point B there is a continuous descent of eighteen feet. The main floor of the house is two feet below the street on the south side and ten feet above the street on the north side. The street on the south side is carried on a retaining wall of field stone built very roughly, without mortar, spreading toward the base and furnished with numerous pockets and deep crevices filled with leaf mould. Opposite the more important windows of the house the parapet of this wall is ten feet or more above the natural surface of the ground.

Between the base of the retaining wall and the house there is a slight ravine, providing for surface drainage, the north side of which constitutes a bank covering the high foundation

walls of the house. A walk, leading from the street on the south to the house, crosses this ravine upon an arch of field stone connecting with the stone of the retaining wall. Mosses, fern and creepers dress all this stone work, and the banks of the ravine are planted with shrubbery that will nowhere grow so high as to obstruct the outlook from the windows. Windows of the three principal rooms of the ground floor and the little terrace shown on the diagram all command the important view to the south-east. The upper windows look over the stable.

All these plans have been carried out with satisfactory results, and a more detailed account of the work on some of them may be given in a subsequent paper.

Brookline, Mass. *F. L. O.*

[It is to be remembered that these diagrams illustrate simply the solution of the fundamental problems presented in each case. And yet the determination of the framework of the design is, of course, a matter of controlling importance, and the special training of the landscape-architect is needed at this point, if it is required at any. If his assistance is not invited until after the house has been located and perhaps built, he may find it impossible by the most skillful after-treatment to correct the fatal mistakes already made.—Ed.]

Notes on North American Trees.—XVII.

THE West Indian Birch, or Gum Elemi, one of the trees of tropical America which reach the shores of south Florida, has long been known to botanists as *Bursera gummifera*, the name given to it by Jacquin in his "Selectarum Stirpium Americanum Historia," published in Vienna in 1763, who there established his genus Bursera, or Burseria, as he wrote it, for this plant. It was well known to earlier botanical writers like Hermann, Plukenet, Browne, Sloane and Catesby, having been one of the first of the American trees to attract the attention of Europeans, who fancied that its resinous juices possessed special medical virtues. It was this plant, probably, which Linnæus, in his "Materia Medica" published in 1749, called Simaruba, considering it, perhaps, identical with the Simarouba of the Caribs and the inhabitants of Guinea (the *Simaruba amara* of Aublet), as not many years later he refers the Simaruba of that work to the Bursera of Jacquin. But previously to the publication of Jacquin's genus, Linnæus had described our plant in the first edition of his "Species Plantarum," published in 1753, as *Pistacia Simaruba*, and it was not until the publication, in 1762, of the second edition of the "Species" that he adopted Jacquin's genus, changing Jacquin's orthography to Bursera.

It may be mentioned in parenthesis that curiously enough the published date of Jacquin's work is 1763, and that that of the second edition of Linnæus' "Species" is 1762; still Linnæus quotes there correctly Jacquin's figure of *Bursera gummifera*, published a year later. The date of the publication of one of these books as printed must be wrong, therefore, unless, as is more probable, Jacquin submitted his figure and description of Bursera to Linnæus before they were actually published. This, however, is unimportant, and what I want to call attention to is the fact that the authors who have written of our Bursera since Linnæus have overlooked the description in the first edition of the "Species Plantarum," and the fact that Simaruba is the earliest specific name of the species, antedating by ten years Jacquin's name; and that the principle of using the earliest Linnæan specific name being adopted, our plant must become *Bursera Simaruba*. There can be no doubt concerning the identity of the plant Linnæus described as *Pistacia Simaruba*, for he quotes under his description the unmistakable figures of Sloane in the "Natural History of Jamaica," and of Catesby in the "Natural History of Carolina," while in the second edition of the "Species" he quotes as a synonym of *Bursera gummifera* his *Pistacia Simaruba* of the first edition. The case is a perfectly clear one, therefore, and the change of name is unavoidable if the principle, which seems correct, is adopted. *C. S. Sargent.*

Foreign Correspondence.

London Letter.

MAY has brought sunshine with the showers which ought to have come in April, and the gardens are now delightful. Cherries, Plums, Pears, Barberries, Magnolias, American Azaleas, Laburnums and even Horse-Chestnuts are in all their flowery glory, beautiful to look upon and deliciously fragrant. In spite of a dry April and undue prevalence of east wind, the trees and shrubs are as luxuriant in new leaf and flower as one could wish. On the ground beneath the trees there are carpets of Bluebells extending as far as the eye can see in many places. Nothing could be more charming than the rich blue of the flowers of this plant used for covering naked places under trees or to give color to long sweeps of green lawn. Anemones of various kinds, including the brilliant scarlet *A. fulgens*, are largely employed for purposes of this kind at Kew. The effect of what is termed a natural arrangement of such plants is infinitely better than anything produced by planting them in formal beds. Tulips also are largely used for spring effect, and they may be made to add a wonderful amount of color and life to large gardens by planting them in positions where they can be seen at a distance. Arranged in set beds with an attempt at color design Tulips are stiff as ninepins and almost as ugly; but used with judgment and not too freely they are most effective. On a sloping, grassy bank on the sunny side of what is called the Wild Garden, a large number of Tulips have been planted in the grass, irregularly. The flowers amid the grass as tall as they are have a charming effect. Besides the best of the garden Tulips, including "Parrots" and "Darwins," some of the most beautiful of the species are largely planted at Kew. *T. Greigii*, grandest of all Tulips, its large, elegant cups of the richest poppy scarlet, ought to become as popular in the garden as "Emperor" and "Empress" Daffodils. It is a native of Turkistan, comparatively new, and as easy to cultivate as any Potter or Duc van Thol. *T. retroflexa* has tall stalks and a cup formed of long, pointed segments which are slightly twisted and recurved, whilst in color they are canary-yellow. *T. elegans* is similar in form to the last named, but deep crimson in color. *T. acuminata* is another of the same stamp, but the flowers are yellow with a tinge of red on the ends of the segments. *T. Kolpakowskiana* has a regular cup-shaped flower, rich cardinal in color, with a black eye-like blotch at the bottom of the cup.

Caraguata angustifolia is one of the prettiest of the smaller Bromeliads. It forms a compact tuft of short stems and short, narrow, dark green leaves, from amongst which the flower spikes spring. These are five inches long, curved, as thick as a man's finger at the base, thickening upward, owing to the overlapping of the boat-shaped bracts, which are brilliant scarlet. The flowers are about two inches long and colored rich yellow. Several plants of it are now in flower at Kew, one with four spikes, although the plant is not a foot through, and nothing could be prettier. The species is a native of the Andes of New Granada, from whence it was introduced by the Messrs. Veitch, and distributed from their nursery in 1886. Most of the Caraguatas have large bright-colored flowers and bracts, and they are easy to cultivate. To any one in search of a distinct, beautiful, little flowering plant I would strongly recommend *C. angustifolia*.

Solanum Wendlandii.—This is by far the handsomest in flower of all the Solanums known to me; indeed, it is so superior a plant that one almost wishes it were called by some other name than Solanum. It is a stout growing climber, with fleshy, tubercled stems, large, entire or laciniated leaves, and enormous trusses of large, purplish blue flowers. A plant in one of the stoves at Kew has a stem thirty feet long, with short lateral branches, from which hang the flowers, the largest truss of which measures over a foot through. The flowers are not fugacious, as those of most Solanums are, and the plant will continue to develop bloom all the summer through. For this grand species we are indebted to Herr Wendland, of Hanover, who introduced it from Costa Rica. It revels in rich soil and plenty of water when growing, but during winter it should be kept dry. For large stoves there are not many plants that equal this as a flowering climber. There is a figure of it in the *Botanical Magazine*, *t.* 6914.

Rhododendron Kewense.—This is a hybrid obtained at Kew by crossing *R. Hookeri* with *R. Aucklandiæ*, where it flowered for the first time in 1878. A plant of it now flowering in a position where it has been slightly protected in frosty weather is a magnificent picture. The flowers are in loose, erect heads, about ten in each head. When in bud they are a bright rose-crimson; when fully expanded they are blush white, cup-shaped

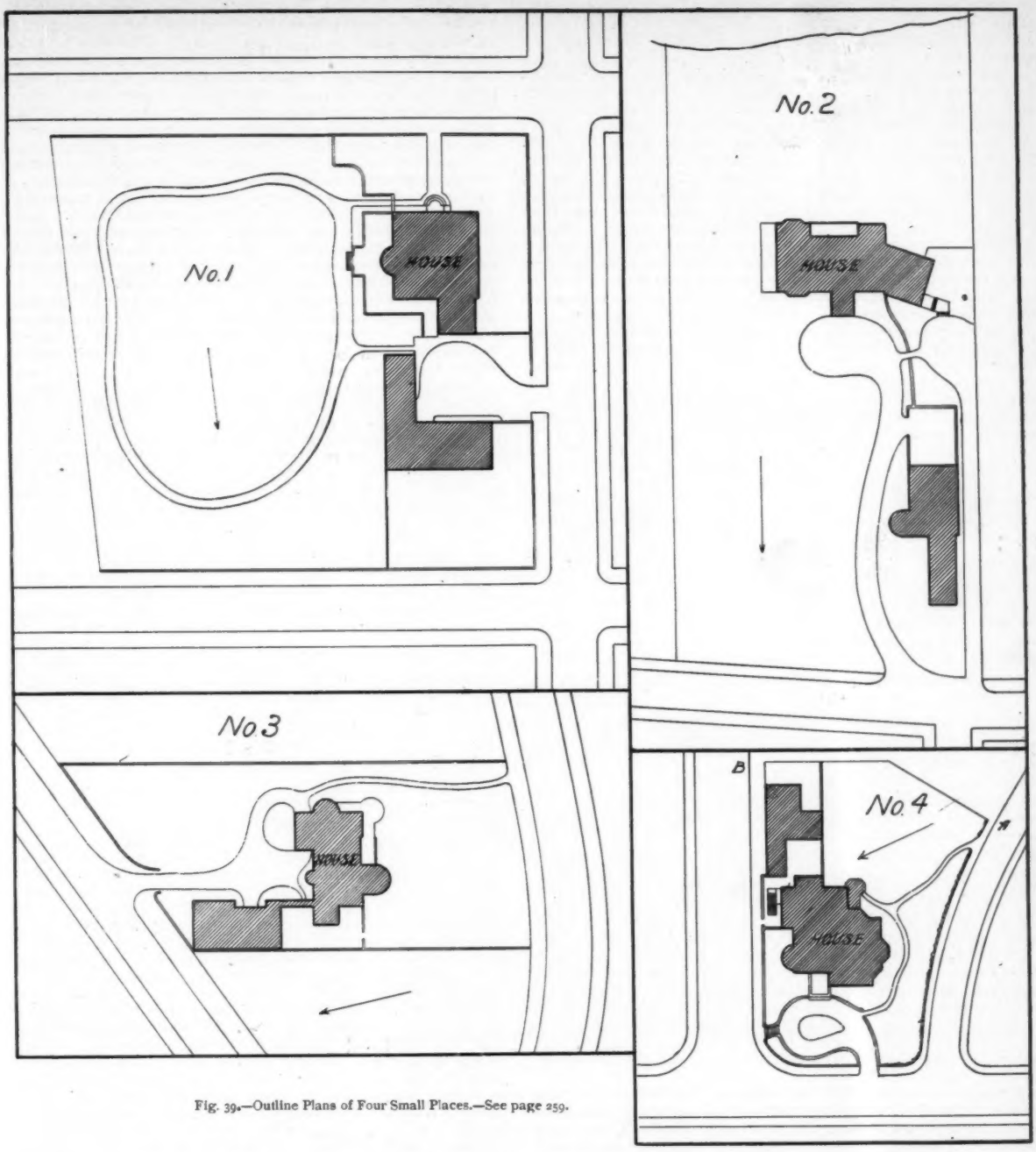

Fig. 39.—Outline Plans of Four Small Places.—See page 259.

and three inches across. The young leaves are subtended by large crimson bracts, and the effect of the whole is a rich glow. The plant is six feet high and nearly the same through, and it bears about fifty heads of bloom. It is the finest of all the hybrids hitherto raised from the Himalayan Rhododendrons.

R. AUCKLANDIÆ is also now finely in flower in the Winter Garden. There are few more noble greenhouse plants than this. It requires plenty of space, never flowering until it is eight or ten feet high, and it ought to be planted out. The flowers are in loose, erect heads, and each flower is at least six inches in diameter, saucer-shaped, and pure snow white. This species is as grand among Rhododendrons as *Magnolia grandifolia* is among its kind.

PTERIS ENSIFORMIS, VAR. VICTORIÆ.—This is one of Mr. Bull's new introductions from the East Indies, and it is so distinct in character, so graceful in habit and pretty in variegation that it is certain to become universally popular as a decorative Fern. It belongs to the same group as the well known *P. cretica* and *P. serrulata*, but is distinguished by the tallness and erect habit of its fertile fronds, the pinnæ of which are very narrow. The barren fronds form a compact rosette and are broad in the pinnæ. The whole plant is green, conspicuously mottled and margined with white. Mr. Bull will, I believe, include this Fern in his list of new plants for sale this year.

STREPTOCARPUS DUNNII.—Of the many extraordinary plants introduced into cultivation from South Africa this is one of the most remarkable. Its solitary leaf sprawls along the ground like a huge Rhubarb leaf minus the stalk, whilst from its base spring crowded racemes of tubular brick-red flowers, the largest racemes containing as many as a hundred flowers. In the house devoted to succulent plants at Kew there is a row of plants of this Streptocarpus, numbering about fifty, and

they are now in flower, presenting a picture of the strangest character. Seeds are produced freely by cultivated plants, and the seedlings grow into full size in a year. The leaves are a yard long and about half as wide.

Strikes are the order of the day in England, and the discontent which leads up to them has affected the market-garden laborers of West Middlesex. Last week about 500 of them paraded the streets and demonstrated in Hyde Park. Leaving their work at this time of the year they have seriously crippled the masters, and unless an arrangement is soon arrived at permanent harm may be the outcome. From the men's standpoint, indeed from a common sense standpoint, the men's demands are fair and reasonable, and one hopes they may be granted. In America it will appear strange, perhaps, that men who are adepts in the work of growing flowers, fruit and vegetables for the London market, which means that they are grown as well as they can be grown; men who cannot be called mere laborers, because the work they perform requires skill and experience as well as endurance; that such men should have to strike to obtain wages of fourpence ha'penny an hour. This is the men's side. From the masters' side it has to be admitted that the price they can afford to pay for labor is regulated by the market, which is open to the produce of all countries. Put, say, ten per cent. upon the cost of the production of the market-gardens in England and probably the English produce will be beaten by the foreign. The lot of the market-gardener of London is not by any means an easy one.

Cytisus Adami.—In the Coombe Wood Nursery of Messrs. Veitch, an interesting experiment is being made with a view to testing the theory that this Cytisus is a graft hybrid between *C. purpureus* and *C. Laburnum*. A row of plants of the last named have been grafted with *C. purpureus* and the results will be carefully watched. Messrs. Veitch have undertaken this experiment at the request of Dr. Romanes, an eminent English naturalist and a fellow-worker with Mr. Darwin. If the theory with regard to *C. Adami* is correct, it is strange that amongst the millions upon millions of grafted plants this is the only case of the kind that has occurred.

London. *W. Watson.*

Cultural Department.

Orchard Experiences.—V.

THE "education" of an orchard (in the fundamental sense of the word) is the nicest and most important portion of the orchardist's work, and that which will both test and demonstrate his knowledge. A man who can take an orchard of even twenty varieties of Apples and train each one in accordance with its habit of growth into a perfect tree, is a worthy candidate for the highest degree of any horticultural college. Such work must begin with the young tree. It ought to begin in the nursery. It is a difficult task at the best, and most difficult of all with varieties unfamiliar to the operator.

There is an immense diversity of growth among different varieties. Some require almost no pruning at all, having but small tendency to multiply their branches; while there are other sorts very close-budded, and not a dormant bud amongst them all. Years ago a now eminent botanist suggested to me that the branching of an Apple-tree should be based upon its phyllotaxy—the side branches to be five in number, growing in an ascending spiral around a central trunk. I could never make this system work in practice, except with an occasional seedling, usually a Siberian Crab.

If Nature were sufficiently compliant I would start the head of every standard Apple-tree with but three main branches; but a danger in attempting this is that it may end in getting but two. Certainly, the main branches must be far enough apart in the beginning never to become opposite or nearly opposite. They ought to stand in some symmetrical order, so as to make an evenly balanced head, since a tree will always tend to lean toward its heavier side. In northern New England all orchards, the trees of which were set perpendicular, will in fifteen years lean, and most of their branches will point, toward the north-east. With a view to obviate this, many now lean the trees in planting toward the south-west, from whence are the prevailing winds during the period of active growth. These winds will, in the end, win the battle, though the contest is thus somewhat prolonged.

That pruning is best which keeps the tree in proper form with the removal of the least wood. "Penknife pruning" is strongly advised, and is the ideal method; but it demands eternal vigilance. Some varieties bear the removal of quite large limbs without much apparent injury, while with others the taking away of a limb an inch through will leave a wound that will never heal, soon making the trunk rotten and ruining the tree. It has been often advised to cover all such wounds with some sort of composition or cement, or to paint them with a thick, ochreous paint. This does some good, but not much. If the variety is thoroughly hardy in the climate where it is growing a wound not exceeding an inch across will grow over in two seasons. If not hardy, the attempt to heal will be defeated by the winter-killing of the new growth, and the wound will tend to enlarge rather than heal, the tree becoming "black-hearted," breaking down and dying.

What is this disease of "black heart," about which so much has been written? It is simply the killing of the weakly vitalized heart-wood by low winter temperature. This takes place with different varieties at different temperatures. Is it the temperature at which the sap freezes, as Mr. Meehan has taught? I do not know; but this I do know, that nearly every variety of southern New England and the middle states becomes black-hearted in northern New England and Canada. If no wounds are made that will not heal in one season, such trees, "hardy, but not iron-clad," may live and bear much fruit before dying; but at last they perish when an over-crop breaks down the weakened branches or a phenomenally cold winter comes along.

Even with the most thorough iron-clads, I would paint and repaint every season, until healed, all wounds too large to heal in one or two seasons. From my experimental plantings, begun twenty-four years ago, I have been removing year by year a good many trees that have proved failures, or for overcrowding. Using the wood of these trees in my office stove, I have had a good chance to study their morbid anatomy and to trace the effects of cold and of pruning upon them. In every case of black heart from pruning, it has been easy to trace the course of decay inward and downward from the point of removal, and the lateral spread of the fungous disease which accompanies it, until the whole trunk is infected. There is no preventing or stopping this decay in any of the tender varieties. Once it begins, the destruction of the tree is sure. But in the "iron-clads," and especially in the Russian varieties, even when the wounds are large and have not healed over for several years, there is not a particle of decay or any fungoid infection. The woody fibres continuous with the severed branches show a changed color and seem destitute of life; but this wood is dry, hard and elastic, and the change does not extend to the contiguous wood. The wounds heal over perfectly, and there are no signs that the tree is not quite as healthy as others of the same variety that have never lost a limb.

Newport, Vt. *T. H. Hoskins.*

Notes on Shrubs.

In Garden and Forest for May 7th Professor J. L. Budd writes of the hardiness of *Prunus tomentosa* at Ames, Iowa. This little Cherry has usually proved perfectly hardy and borne an abundance of flowers and considerable fruit at the Arboretum, but this spring a large proportion of the buds and even some of the branches were destroyed, the injury being most severe to those plants on low, rich soil. This is a pretty little shrub with a broad spreading habit, specimens in the Arboretum attaining a height of five or six feet and resembling a very large Currant bush. It is one of the earliest of the genus to bloom, and when in good condition the branches are covered with medium sized white flowers, which usually have a more or less pinkish color. The flower stalks are so short that the blossoms appear almost sessile. The ripe fruit is of a light cherry-red color and has an agreeable flavor. It is a small Cherry and contains a large stone. Dr. Bretschneider collected seed of this plant in the mountains about Pekin, China, and as a rule it may be counted hardy in every way.

Among the four or five species of eastern North American Plums there is none so hardy or so showy when in blossom as the Wild Red Plum (*Prunus Americana*). In regard to hardiness it is what the gardeners term "iron-clad," and is found in the open woods far north in Canada. The vigor and endurance of the species in Manitoba and other equally trying regions where it is indigenous have in recent years caused some attention to be given to its cultivation and the improvement of the quality of its fruit. The fruit, which is either red, orange or yellow, varies much in size on different trees when growing wild. It is often of a pleasant taste and is sold in some northern markets. At the Arboretum the showy snow-white blossoms of plants from the north and north-west appear before the leaves during the first week of May and continue for seven or eight days, but it is noticeable that plants from Ohio are nearly a week later in flowering. When varieties of *Prunus domestica* and other cultivated Plums are very seriously affected by "black knot," the Wild Red Plum is often

remarkable for being free from it. As a stock upon which to graft many other species and varieties of the same genus this is one of the best. The little Beach Plum (*P. maritima*) comes into bloom as the last flowers of the Wild Red Plum fade, but although it blooms as freely, the whole aspect is different. The flowers lack the fleecy whiteness of the first species and as the flower-stalks are short they appear clustered on the branches.

Three or four species of flowering Currants attract much attention at this season. Of these *Ribes sanguineum* is unquestionably the most beautiful, although unfortunately the least hardy. In the climate of Boston it is necessary, if the plants are to do well, to give them more or less protection according to the situation in which they are placed. Although long known it is surprising that this beautiful flowering shrub is yet familiar to very few people. The plants grow well in any ordinary, moderately dry, warm soil. The racemes of bright, rose-red flowers are the only attraction of the plant, for neither the foliage nor fruit have any peculiar ornamental or economical value. The ripe fruit is small, black, tough, dry and bitter. The odor of the flowers and other parts of the plant very much resembles that of the cultivated European

The Major Oak, Sherwood Forest.—See page 258.

Black Currant, though less rank. In cultivation there are varieties with flowers of various shades of color from deep red to almost white. As it grows at the Arboretum this species does not develop such tall and stout stems as the bright yellow flowered Missouri Currant (*R. aureum*) so common in cultivation. The flowers of the last species are spicily fragrant, and no part of the plant has much of the odor of the Black Currant, which is disagreeable to so many people.

There seems to be no question of the hardiness of this species even much further north, and it thrives fairly well in poor soils and in shady places where most other related species would languish. The fruit when ripe has a peculiar sweetish but not agreeable flavor. It is black or bluish black, and sometimes quite large, although exceedingly variable in size, and the berries are few on the racemes. These two western species are said to have been the parents of the hybrid *R. Gordonianum*, which in foliage and flower most resembles *R. sanguineum*. The hybrid has the erect, stout-growing habit of *R. aureum* and it also partakes of its hardiness. The flowers are practically odorless, and, as in the case of many hybrids, they do not appear to be followed by fruit. None of the preceding species are touched by the defoliating larvæ of saw-flies which so regularly attack the common red Currants and Gooseberries.

Ribes cereum is another rarely cultivated Currant from the western part of the continent, which, although not conspicuous nor large growing like the species already mentioned, has flowers of much interest and beauty. The blossoms, much hidden by the leaves, drooping and few on a raceme, are tubular and from a third to nearly half an inch in length, and of a pretty pinkish white color with a waxy appearance. The flowers of *Ribes aureum* and *R. cereum* are particularly rich in nectar and are much visited by long-tongued bees, and the long tubular calyxes of *R. aureum* are also regularly punctured by the mischievous Carpenter Bee (*Xylocopa virginica*), which is usually mistaken for a humble bee.

The first flowers in the panicled cymes of the early Red-berried Elder (*Sambucus racemosa*) usually open about the end of the first week in May, and continue for ten or twelve days. The flowers on different plants vary from greenish to pure white, and often have a reddish tinge, and when in full bloom they add much to the effectiveness of the shrubbery. Again at the end of June the ripe, bright red fruit is very conspicuous, just at the time that the common Elder (*S. Canadensis*) begins to be showy with its large flat cymes of white flowers. There is a natural cut-leaved variety of the Red-berried Elder, which is likely to become more commonly seen in gardens.

Most of our native, as well as the foreign Alders, are characterized by very early spring blooming, but the Green Alder (*Alnus viridis*), a native of the northern and mountainous parts of eastern America, does not ripen its pollen until the blossoms appear on the Red-berried Elder. This little Alder only grows from three to eight feet high, and is the last of the genus to develop foliage in spring, the leaves not appearing until the flowering of the catkins. The sterile catkins are very handsome, being sometimes from three to four inches long and quite thick. When fully open the flowers appear light yellowish green under the shelter of the rich brown bracts. The sterile catkins are exposed all winter, while the small fertile ones are protected within large, reddish brown, scaly buds, thus differing from other common species, which have all the catkins exposed in winter.

The plants grow well in cultivation at the Arboretum and the foliage in summer is a handsome dark green.

Arnold Arboretum. *J. G. J.*

Spring Flowering Iris.

TWO of the prettiest of all the spring Iris lately in flower are *Iris Persica* and *I. Rosenbachiana*. Other kinds now past are *Iris reticulata cyanea*, I. "J. G. Nelson," the bright little yellow *I. Bornmülleri*, and we have had flowers of *Iris stylosa alba*, and the "Snake's-head," or "Widow Iris," *I. tuberosa*, a fragile little flower that has a sombre appearance, suggestive of apple-green satin and black velvet. The typical *Iris stylosa* of Algeria has yielded odd blooms ever since Christmas, and quite lately a large tuft of it, covered by a frame light elevated on posts, gave us quite a dainty crop of its soft lilac buds and blossoms. The typical *Iris reticulata* is after all one of the sweetest and most useful of all the spring blooming kinds, and has become luxuriant since Mr. Bedford, of Straffan, taught us the right way to grow it in peat, sandstone grit and cocoa-nut fibre refuse. The rich violet-blue flowers are deliciously scented, and our friends and visitors have been quite delighted with them this season.

One of my pet Irises is the old *I. Persica*, which, apart from its beauty, is quite of historical interest, since it forms No. 1 of that splendid series of plates issued in the *Botanical Magazine*. It was formerly the fashion to grow its roots in water-glasses, as is now occasionally practiced with Hyacinths, but in a deep sandy peat-bed the bulbs are far more robust, and more permanently healthy. The flowers of this species are of a delicate blue tint, verging to green, the hue of a thrush's egg, for example, and there is a velvety blotch on each of the "falls" around the end of the rich orange crest, and some dark dots and markings help to emphasize the satin-like delicacy of the petaloid styles, or standards, as Iris-lovers call them.

One of the most robust of all the newer species seems to be *I. Rosenbachiana*, which bears a bold little flower, similar in shape to that of *I. Persica*, but of a smoky lilac color, having a rich dark blotch on the falls, lit up by a vivid orange ridge or crest, on a nearly white ground. It is strong and beautiful, and promises to be quite an addition to a very beautiful group. So far as I have tried them, all the species and varieties of Iris are quite delightfully adapted for cutting, provided that they be cut in the full grown bud stage, and not allowed to open on the plant. *Iris reticulata* and all its forms, *I. stylosa* in variety, *I. Rosenbachiana*, *I. Persica* and all the great Flag Irises yield exquisite blooms as cut in the bud state and opened in water in-doors. Certainly if allowed to expand on the plants, or to remain long open in the open air, nearly all Irises are fragile and fugacious enough, and one might paraphrase old Robert Herrick, who lamented that the Daffodils "wasted away too soon."—*F. W. Burbidge in the Gardeners' Chronicle.*

Notes on American Plants.

THE California Pitcher-plant (*Darlingtonia Californica*) is now in flower here. Our plants were set in a moist place on the south side of a stone wall, which perhaps accounts for their blooming so early. The almost naked scape bearing the single flower is fifteen to twenty inches high, curving at the top, so that the flower is pendent or nodding, as is that of *Sarracenia purpurea*. The narrow, greenish straw-colored sepals are an inch and a half long. The purplish petals are an inch long by half as wide, slightly streaked with yellow, and only partially hidden by the longer sepals. In fully developed plants the long and peculiar pitcher-shaped leaves are very interesting. It is seldom that really fine specimens of this plant can be had from collectors, but we have seen such with beautiful long leaves over a foot in length. It is generally considered a difficult plant to grow, yet, I think, if in the right place, and with a protection of leaves in winter, it can be grown and flowered with success. It seems to prefer a black peaty soil. Ours, now set in sand, do not show health as we have seen it in decayed peat. In a boggy situation, set in peat unmixed with sand or gravel, we believe it would thrive.

Uvularia perfoliata, one of the Bellworts now in flower, is about a foot high, with light yellow or cream-colored pendent flowers, nearly an inch long by a fourth of an inch in diameter, and it has darker foliage than either *U. grandiflora* or *U. sessilifolia*. It seems to do best in a fine loamy soil. We have never succeeded with it in a heavy soil. It needs to be set in early autumn in order to flower freely the following spring.

The Scarlet-painted Cup (*Castilleia coccinea*) is a biennial, with a hairy stem and leaves. At the summit around the flower are so-called floral leaves, the upper portions of which are of a beautiful bright scarlet color, more showy than the flower itself. It may be easily grown in moist sandy soil.

Iris cristata, from the southern Alleghanies, which has been mentioned in former numbers of Garden and Forest, is one of our earliest of this genus, and is certainly for many locations a valuable plant, forming dense beds of its fresh green foliage, only five inches high, but thick and even, with an abundance of light blue and white flowers an inch and a half wide. If it did not flower at all, its foliage alone would make it worth growing. It will thrive in any well drained soil.

Camassia esculenta, from the Pacific coast, now in flower, grows from ten to twenty inches high, with long grass-like leaves from near the root, and bearing at the top a loose spike of violet-blue flowers, five inches long. The flowers are an inch or more wide and there are from ten to twenty on a spike. These are valuable for cutting. The bulb is easily wintered by protecting with a thin covering of leaves.

A rare and delicate little Primrose is *Primula Mistassinica*, found in only a few locations. At Willoughby Mountain, Vermont, it is quite abundant in places. Its height is from three to nine inches, and it usually bears in a small umbel several pinkish or light purple flowers scarcely half an inch wide. Its natural home is in the moist soil at the foot of wet rocks. It can easily be grown in a cool and shady place, in clay or gravelly loam, and will continue to flower from year to year.

Clematis ochroleuca is not a climbing species. It grows from ten to fifteen inches high, bearing numerous pale purple or nearly white flowers, three-fourths of an inch long by half an inch wide. The plant is not a very showy one in flower, but its plume-like fruit is pretty. In its general appearance it much resembles *C. Fremontii*, but the latter is a stronger growing species, with larger leaf and flower. This species has darker flowers, and is a more stocky plant when well established. *C. Douglassii*, of Oregon, is somewhat like the two just mentioned, but its flower is more showy than either, being a dark purple. The foliage is finer and more divided, and the plant is not so tall. All three come into flower at nearly the same season. They do best in open sunlight in light soil, and are interesting both in flower and fruit.

Frittillaria recurva, which has been mentioned in a former number of this paper, is now in bloom, and it is certainly one of the most attractive plants from the Pacific coast. The plant can be grown readily in a light loamy soil, with a thin protection in winter. It blooms early, and its scarlet, lily-like flowers are of long duration, and it will be very useful for cutting.

Southwick, Mass. *F. H. Horsford.*

Hardy Plants for Cut Flowers.—VI.

THE best Ranunculus for cutting is the double form of *R. speciosus*. A patch of this variety is now a bright yellow, visible for some distance. This plant has flowers, large and very double, borne on good stout stems, and is far better than any other we have tried. It will succeed in any moist soil; the more wet the soil the better, so long as it is not liable to become sour. *R. speciosus* also increases rapidly and bears division annually. There is also now in bloom the earliest of the Pæonies—*P. paradoxa*. This species always flowers two weeks earlier than any other, and has large, deep rose-colored, single flowers, which are very showy just now, but two weeks hence would be invisible among the other varieties of garden origin; but flowering so early, it is an acquisition to the flower border. The foliage also of *P. paradoxa* is quite distinct from all others in being of a dull glaucous green.

Various kinds of Hemerocallis are also in bud, and the earliest, *H. Dumortieri*, has already opened some of its bright orange colored flowers. *H. Mittendorfiana* will soon follow; also *H. flava*, with lemon-yellow fragrant flowers, and last of all *H. Thunbergii*, which flowers in August, but is similar in color to *H. flava*. These are the four best of the Hemerocallis for cutting. The individual flowers last but one day, but the unopened buds expand in water in succession almost as well as on the plant. There is another Hemerocallis, with finely variegated foliage, known as *H. Kwanso variegata*, which is one of the best of hardy ornamental-leaved plants. It is liable to turn green sometimes, but if the green shoots are taken out when they appear the variegation can be held constant.

The best early herbaceous Anemone is *A. rivularis*. The flowers are pure white, almost as large as those of *A. Japonica*. They begin to open at the end of April, in May they are at their best, but they are produced at intervals all summer, so that this plant has considerable value for the border or for cutting. Many have seen and all have admired the graceful flowers of this, the so-called "Snowdrop Windflower," owing to the way the flowers are borne on the stems. We find *A. rivularis* succeeds admirably in the open border, and intend trying it in half shaded positions in masses, where the effect would be charming. One flower produces seed enough to raise a hundred plants, and these flower the second year, so there is no reason why *A. rivularis* should not be better

known than it is among lovers of heavy plants. The Hybrid Primroses have already been mentioned in GARDEN AND FOREST and it is surprising how little these plants are grown and known. We adopt no other method in winter than the placing of two boards, one on either side of the bed, to collect and retain falling leaves, and these are sufficient protection. The common English Primrose and Cowslip thrive under the same treatment. It should be stated that the bed is under the shade of overhanging trees, for we found that in our sandy soil the plants could not stand the fierce heat of summer. *Primula Sieboldii* is less known than the hybrid kinds, but it is perfectly hardy also, and being deciduous one can apply a top dressing of two inches of manure in fall, through which the young leaves and flower stems will push with vigor in early spring. The great value of *P. Sieboldii* is in the color of its flowers, which are of a deep rosy purple, and when flowering side by side with the hybrid varieties the latter look pale and washed out by comparison. The plant appears in many varieties, but none equal the type for brilliancy of color and stout, erect stems. We always sow all seed that ripens as soon as gathered; it sometimes takes six months to germinate, but the plants will all flower the second year and will show plenty of variation in size and color, and we have raised some of our best from seed saved from our own plants. *P. Sieboldii* throws its flowers well above the foliage on stout stems often a foot high, and these flowers when cut have a very choice appearance, for their color is not common among hardy flowers.

The native Cypripediums are now at their best. *C. pubescens* and *C. parviflorum*, with their yellow and brown flowers, are fully expanded, as is also *C. montanum*, a species from Oregon which is perfectly hardy in the east. The prettiest of all is *C. spectabile*, the "Moccasin Flower," and this flowers later than the others. These beautiful Orchids are very easy to grow wherever a shady position can be afforded them, for they dislike sun, and it is safe to say that although among exotic kinds of Cypripediums there are many weird and fantastic flowers, none of them can excel in beauty and delicate coloring the pretty native *C. spectabile*. *E. O. Orpet.*

Seasonable Hints.—The season is now sufficiently advanced to warrant the planting of all tender vegetables. Gardeners who made haste to plant them earlier will find that owing to the cold rains and low temperature of last week no time has been gained. If Egg plants are now set out they should be carefully watched, and if attacked by the Potato beetle should receive a dusting or sprinkling with diluted Paris Green. In planting Lima Beans it is good practice to set the seed eye downwards. The dwarf or bush Limas deserve a fair trial and may be planted about a foot apart in rows two feet apart. Corn fertilized in the hills will get a better start before the warm weather in which it makes the strongest growth. In setting out Tomatoes each plant should have three feet of room and when support is needed three stout stakes should be driven about each plant and about two and a half feet above the ground a barrel hoop should be nailed to them. The Dwarf Champion is of such a stocky habit that it does fairly well without support. Celery plants can now be had of the dealers and if set out at once in a deep, moist soil may be had fit for the table in August. The cultivation should be the same as for a late crop except that boards can be used to better advantage for blanching them than earthing up. Sweet Potatoes will grow best in a sandy warm soil, and placed in this latitude on slightly raised ridges three feet apart and about one foot apart in a row. Succession crops of Peas and Beans may be sown and the seed of Cabbage, Cauliflower and Kohl-rabi may be sown for autumn crops.

The Flower Garden.—Plants for summer decoration may all be set out now. Many of them may occupy the beds which have been filled with Dutch bulbs, now done flowering. Hyacinths, Tulips and Narcissus can be bought so cheaply that they are hardly worth the labor of preserving; but if it is desirable to keep them, the best plan is to allow them to remain until the leaves begin to wither. They should be then lifted and set close together on the surface of the ground in a sunny position and covered with an inch or so of soil or sand. In about a fortnight the bulbs will be ripened, when they should be taken up and dried in the sun for a couple of hours and they will then be in proper condition to store away for planting next fall. Shallow cultivation should not be neglected in the flower-beds, for this keeps down weeds and preserves the moisture. Wherever mildew appears the flowers of sulphur should at once be applied.

Bergen, N. J. *P. O.*

The Forest.

Forestry in Northern Ohio.

IN this region it would seem that two essential conditions are required for the reproduction of forest-timber. First, a few trees of the kinds that will be most needed in the future must be spared to disseminate their seeds. Second, cattle must be excluded. The case is complicated when birds and rodents destroy the seeds of certain species. In the case of the Magnolia there are sometimes no seedlings near the parent tree, but we are surprised to find them coming up a a long distance away, since the seed could not have been carried by the wind. It has been suggested that the blue jay picks the red berries out of the Magnolia fruit or "cucumber," and the nutlets within escape digestion, and are scattered. This is made probable by the young Magnolias we find on the forest-border near corn-fields, places of resort for the jay when corn is ripe. The seeds of the Whitewood (*Liriodendron tulipifera*) are blown by the wind 300 to 400 feet at least, as are those of the Maple and several other trees.

But these essential conditions have been almost wholly neglected. During from sixty to eighty years the young of our forest-trees have been fed to the cattle, and that amount of time has been lost. In many cases no trees of the most desirable kinds have been left to produce seeds. On the contrary, the trees which are left in abundance are the least valuable. It is as though a farmer should destroy his seed corn, but allow the weeds to ripen seeds by the million. It is the survival of the unfittest. Beech, which is of little value here, is left in greatest abundance. It is a fine and useful tree in the original forest, the trunk tall and straight, but on the borders and in openings made by cutting out other trees, the smaller Beeches send out large laterals near the ground, and are practically worthless. Many of the Sweet Gums (*Liquidambar styriciflua*) have escaped destruction because of the difficulty of hauling them out of the wet places where they thrive, and they are now really valuable trees. The Birches which are found near them in the wet grounds are small trees, and are seldom used. Many fine Sycamores have also been left because they are not easily accessible. They stand on the bank of the river, leaning toward it, or are hemmed in by impassable sloughs.

The Sugar-Maple is an exception to the statement that the unfittest of our trees have survived. It heads the list of trees that pay yearly dividends while they live, and are valuable for lumber, fire-wood, etc., when they are cut down. A farmer who has a sugar-orchard and a dairy compares his Maple-trees to his cows, which are made into beef when they are no longer profitable for butter. The Hickory, Chestnut, Walnut and Butternut may yield delicious fruit year after year for a century or more, and make lumber in the end, but it is a common remark here that no other crop the farmer can produce pays him better than the sugar crop. How unfortunate, then, that cattle have been allowed to destroy the young Maples in nearly every sugar orchard in the country. The Maples that have yielded sugar from twenty to eighty years or more are growing old and dying out, and there is no rising generation to succeed them. They are wonderfully prolific, and the young ones thrive better the more other timber is thinned out. Fence out the cattle, and a thicket of young Maples will spring up to take the place of the old trees that are passing away. Neglect to do this, and it will soon be too late.

One objection which is urged against the exclusion of cattle from the sugar-orchard is that the undergrowth which springs up blocks the way, and hinders the gathering of sap and the getting out of timber and fire-wood. But it costs but a trifle to mow the usual roadways and passages close to the ground once or twice a year. But if it is too great a hardship to exclude the cattle permanently, keep them out at least until the tops of the young Maples and other desirable trees have grown above the reach of their teeth. Sometimes about two-thirds of the young growth is Ironwood. I should cut out the parent Ironwoods and other undesirable trees to prevent their seeding the ground. It is sometimes said the profit to be derived from the protection of a new growth is so far in the future that even our children will not live long enough to receive any benefit from the results. This is a mistake. It does not take several hundred years, as many suppose, for trees to grow and become useful. I know of whole orchards of Maples that could have been cut down with a pocket-knife when I first saw them, and which are now magnificent trees, the yield of sugar to the tree being above the average.

Forest-fires are infrequent with us. The wood-lots being small, from a quarter to a sixth, probably, of the whole area,

and being surrounded by cultivated fields so much larger, no fire can spread far. When fire does any considerable damage it is the result of carelessness on the part of wood-cutters, who leave the brush strewn over the ground. If the brush is properly piled, and every few rods a space is cleared of dead logs and branches, a few men can prevent any fire from spreading. I lately visited a piece of woods a few acres in extent that I saw burned over early in the summer. It was in one of the few blocks of forest in this region from which cattle have been excluded for a number of years. The young Hickories, which have deep tap-roots, are sprouting up again vigorously, but the fire seems to have killed all the little Maples.

With the destruction of so large a proportion of our forests have come great changes in our streams. Formerly the water of the snow and rainfall of winter and spring was held back by the shade, and by the accumulation of porous mulch and swamp deposits in the forest, and it flowed more steadily into the streams during the whole summer. Now the water from heavy rains dashes rapidly from the land into the streams, carrying away immense quantities of soil from the plowed fields, filling the rivers with mud, and causing disastrous floods in the Ohio and its tributaries. The undergrowth of the forests being destroyed by cattle, the wind sweeps freely under the trees, the leaves containing the fertility of the forest-soil are blown into the water-courses and lost in the floods. Thus the soil of the whole region, in field and forest, is growing poorer from this cause as well as others. The primitive store of forest-carbon which made our virgin soils so black and mellow, which by its slow oxidation has produced the acid solvents to digest rocky silicates and liberate their imprisoned plant-food, and which by the same slow combustion has caused the formation of those compounds of nitrogen which are the vitality of soils—this store of forest-carbon is fading out, leaving the soils hard and poor. On the other hand, the streams fall so low in summer that it seems probable that some of them would go dry entirely during the hot months if all our forests were destroyed. It seems, too, that the destruction of our forests tends to produce extremes of climate, colder in winter, and drier and hotter in summer, with less rainfall when it is most needed. The water held back by forests in summer tends to cool the air and promote rainfall.

The past history and present condition of our forests are full of admonitions. If population continues to increase, and the present treatment of our forests is continued, some of the children now born may live to see the people burning brush, weeds and corn-stalks for fuel, as is done in some older countries. Our improvident methods tend to destroy all our natural resources and reduce the coming generations of our country to a condition of poverty and want like that of Italy. Our stores of coal are being wasted even more rapidly than our timber. In the Hocking Valley, I am told, only about one-third of the coal in some mines is brought to the surface; the other two-thirds, being of a poorer quality, is hopelessly wasted in the mire of the worked-out mine. When we visit our lumber-yards and pay a good deal of money for a little Michigan lumber for necessary repairs, memory goes back to the time when we had abundance of White-wood and Cucumber, even for barn construction, and the imagination goes forward to the future, and we wonder where the luxury of a little lumber for any purpose will come from when the Michigan Pines are gone, as lumbermen from that state tell us they will be in a few decades at the present rate of consumption; for the hope of future Pines is blotted out by the great fires that follow the axe in that region. How much better for the generations that are to follow us if a few White-woods could be growing here now for their use. How much better for them to import more of some lighter product of the soil from other states, and pay less freight on the lumber which must then come from distant lands. The present tariff on lumber does not seem to promote the production of trees, but rather their destruction.

What can be done to initiate a more rational treatment of our forests? First of all, the people must be enlightened in forestry matters. The majority of land-owners see nothing wrong in present methods. Many do not even comprehend the reproduction of forests in accordance with the laws of vegetable growth, but suppose that young trees spring up without seeds, by "spontaneous generation" or some magical process. Few owners feel that they have any personal interest in the future of their forests. Most of them regard such considerations as impractical and visionary. This state of mind must be corrected by an enlightened public sentiment. I well remember when the market value of land in this region was not diminished by cutting off the valuable timber on it. It was a common remark—"I can sell off the timber for more than the land will bring, and can then sell the land for as much as though I had left the timber standing." This abnormal state of the land-market was the result of deplorable ignorance on the part of the general public and of those who purchased land. To-day the man who pastures his forest-lot and cuts off the hope of a forest for future needs, can sell his farm for just as much, other things being equal, as can the more civilized and provident man whose forest-lot is covered with a young growth of valuable trees. Enlighten the public regarding forestry subjects and the market will recognize the value of the growing crop of young timber, as it now does that of the crop which is full grown and ready for use. Under the influence of an intelligent public sentiment a man will care for the future of his forest, and its consequent increase in market value, as thoughtfully as he now does for the market value of his horse. Other corrective influences might be considered, but one must serve as the concluding word. We need most of all an enlightened public conscience which shall recognize a moral and ethical side to business matters, a sentiment which shall give honor to those who are willing to bestow some thought and work for the benefit of posterity, for the happiness of their children's children, as well as to those more selfish, whose greatest care is to get money now.

Mahoning, O. *J. W. Pike.*

Recent Publications.

History of Botany (1530–1860). By Julius von Sachs. Authorized translation by Henry E. F. Garnsey, revised by Isaac Bayley Balfour. (Oxford: Clarendon Press, 1890; 8vo, pp. xii., 568.)

The present translation of Professor Sachs' work, which appeared in Germany in 1875, is intended to supply the want, long felt by English-speaking students, of a history of botany in English, for, strange to say, there is no English work on the subject in existence. Unlike the older histories of Kurt Sprengel (1818) and Ernst Meyer (1857), which abounded in technical facts, so that, in reality, they were encyclopædias quite as much as histories, the present work attempts to give a bird's-eye view of the science from its origin until the date of the appearance of Darwin's "Origin of Species," which marked the beginning of a new era in botany. The book is divided into three parts, treating respectively of the History of Morphology and Classification, the History of Vegetable Anatomy and the History of Vegetable Physiology. The first and third parts cover the ground since 1530; but vegetable anatomy, a study which requires the use of good microscopes, is of more recent origin, and, according to Sachs, does not go back farther than 1671.

Botany, as a science, did not exist among the ancients, and what passes for botany in the writings of Aristotle, Theophrastus and Pliny is merely a crude description of plants almost buried in a mass of philosophical speculation, and, until comparatively recent times, the history of botany is mainly an account of the struggles of learned men to free themselves from Aristotelian preconceptions and to substitute a knowledge founded on exact observation for vague hypotheses. The first object in science is to obtain a large number of facts; but the ultimate aim, as is strongly and repeatedly urged by Sachs, should be to discover the general laws to be obtained by a comparative study of facts. Throughout the whole of the present work we find brought into strong contrast the observers and accumulators of facts, on the one hand, and the more philosophical reasoners, on the other. In his admiration of the latter class it may, perhaps, be questioned whether Sachs has not, unintentionally, somewhat underrated the former. He apparently regards it a defect in Mohl that, although an observer of the first class, he was disinclined to draw general conclusions from his observations. But a comparison of Mohl with Schleiden, who had no hesitation in laying down general laws from imperfectly understood facts, leaves no doubt as to the superiority of Mohl, a superiority due, as one may think, in some measure, to his disinclination to theorize.

Of the three parts of Sachs' History, that relating to morphology and classification is the least satisfactory, and the one least interesting to the general reader. Contrary to the general impression, Sachs believes that the conception of genera preceded that of species in the writings of earlier botanists, and what he says on this subject certainly has a great deal of force. The place of Linnæus in botany has been much discussed. Just now it is the fashion to say he was much overrated. He was not an experimenter as was Camerarius, who was the first to prove the sexuality of plants, but Linnæus did not claim to have discovered sexuality. But, as Sachs admits,

Linnæus was acute enough to be able to sift the truth from error in the work of his predecessors, and, if he was not entirely free from Aristotelian methods in his reasoning, he was able, as was no other before him, to present a clear and comprehensive system which prepared the way for subsequent classifications. It is hardly necessary to hint that he was not the author of the binomial system, for all attempts to prove the contrary have only resulted in showing that he was certainly the first to advocate and practice such a system. On the whole, recent endeavors to belittle Linnæus have served only to make his superiority the more evident.

The chapters on anatomy and physiology will be found to be much more interesting than those on classification, and, whether one agrees with the author in his estimate of individual botanists or not, they form a most admirable summary of the subjects. The style of the original was clear and forcible and its characters have been well preserved in the excellent translation, which follows the original German, except in a few places where, as the author states in the preface to the translation, changes "could be effected by simply drawing a pen through a few lines."

On closing the book the reader who has followed the course of botany since 1860 cannot fail to remark how great has been the change in the science since that date. The "Origin of Species" certainly has brought about a new epoch in botany. Looking back to 1860 it seems to be but a short time, but there has been a revolution in scientific ideas. One would be glad to have from Sachs, who has himself contributed so much to recent advance in botany, a summary of progress since 1860, and the desire is only intensified as one reads in the author's preface the following lines: "I would desire that whoever reads what I have written on Charles Darwin in the present work should consider that it contains a large infusion of youthful enthusiasm still remaining from the year 1859, when the 'Origin of Species' delivered us from the unlucky dogma of constancy. Darwin's later writings have not inspired me with the like feeling." One would be glad to know exactly which works of Darwin are here meant and why they have failed to inspire the like feeling. Are we to attribute the change of view to the conservatism which naturally increases with age, or are we to conclude that a maturer reflection has convinced Sachs that science has advanced too fast and too far in the direction of Darwinism, and that the pendulum of progress is to oscillate in another direction hereafter?

Correspondence.

Orchids in New Brunswick, New Jersey.

To the Editor of GARDEN AND FOREST:

Sir.—In the gardens of Charles J. Carpender, Esq., of New Brunswick, New Jersey, I recently found a rich display of flowers scattered through the three houses devoted to the culture of Orchids. There were also fine groups of Nepenthes, Anthuriums, Ferns, etc., growing luxuriantly. Among the Anthuriums was a grand form of *A. Andreanum*, bearing flowers of enormous size, some of the largest measuring nine inches in diameter. The Nepenthes, too, were furnished with pitchers of fine form and color, among them being good examples of *N. Amesiana*, *N. Hookeriana*, *N. Dominiana*, etc. Among the Orchids, *Lælia purpurata* made the most prominent display, with its large and bold blossoms, and several excellent varieties were seen, one especially being very distinct, with broad, flat sepals and petals, and a lip of a very rich purple color. The plant bore six spikes, carrying some thirty flowers. Near the roof of the house a number of the beautiful rose-colored *L. majalis* were seen, and, judging from the enormous flowers they bore, this position suited them exactly. One plant had produced two spikes, one with three, the other with two flowers. They were attached to wooden blocks, and when growth is completed they are removed to a cool and dry atmosphere to enable the bulbs to mature thoroughly, and this Mr. Carpender considers the main cause of his success. Among the Cattleyas several fine examples of *C. Skinnerii* were well flowered; also *C. Gaskelliana*, and the old but still popular *C. Mossiæ*. Many others promise a fine show at a later period, among them being several plants of *C. Dowiana*, well sheathed *C. chrysotoxa* and *C. gigas*, all grown in baskets, and in vigorous condition. Several interesting Cypripediums were also seen in flower, chief among them being two large examples of *C. caudatum*, with its curious tail-like petals. The pretty *C. Lowii* had furnished a strong spike, and a group of *C. Lawrenceanum* were all in fine condition, their dorsal sepals being very broad and large, and in one variety the whole flower was suffused with purple. *C. Domenii*, *C. Sedeni*, *C. callosum*, *C. Warnerii*, and others, added to the display; a plant of *Uropedium Lindenii* was in full bloom, its quaint flowers reminding one of a pouchless Cypripedium, and by its side was *Eulophia pulcherrima*, and, though not a very showy variety, its blossoms were well marked. Some excellent Dendrobiums were hanging at the warmest corner of this house; among them several examples of the white flowering *D. Dearei*, bearing clusters of its butterfly-like blossoms. *D. Bensoniæ* also was well flowered, its white sepals and petals, together with its deep maroon centre, making it very attractive. One plant of *D. Pierardii* had produced scores of its pink and primrose-yellow flowers. *Vanda teres* grew very well in this house, and had produced several fine blooms. They were placed in baskets with moss and a good drainage. *Chysis bractescens* was represented by a plant of large size, bearing a number of its bold, wax-like flowers. Some remarkable specimens of *Peristeria elata* (the Holy Ghost Plant) were in robust health, and dozens of spikes were rapidly pushing for flowers. Some stout spikes of *Odontoglossum vexillarium* were rapidly developing, and will later yield a fine display. In the Odontoglossum house there were a number of the beautiful *O. crispum Alexandræ*, carrying well flowered spikes, among them several of the true broad petaled type. Here also *O. Cervartesii* was flowering profusely, one plant carrying some two dozen flowers. Quantities of *O. Rossii* were also well bloomed, together with *O. Pescatorei*, *O. cordatum*, *O. roseum* and many more.

Summit, N. J. *A. Dimmock.*

The Rest of Plants.

To the Editor of GARDEN AND FOREST:

Sir.—Referring to your suggestion that I should write something on this subject, I may add to what has already been said (see GARDEN AND FOREST for April 16th, page 195), that practically, as I suppose, all plants have, or are the better for, a rest; but it is hardly conceivable that there is any absolute cessation of activity short of death. In the so-called dormant or resting period chemical and molecular changes advantageous to the plant are, no doubt, going on. When there is a sharp change in the conditions from a fall in temperature or from lack of an adequate supply of water, then the "rest" is more pronounced than is the case where the conditions are more uniform. In equatorial countries, where the climate is nearly uniform throughout the whole year, growth is also continuous. So in the cultivation of evergreen Orchids, or of bulbs which bear their leaves the whole year, it is evident that the "rest" is different in degree, at least, from that which obtains in cases where the leaves die off, and the treatment must be correspondingly different. Generally speaking, plants may be "rested" by submitting them to a lower temperature and by withholding water. In some cases, as with bulbs, tubers of Dahlias, etc., lifting the bulbs and storing them in a dry place to which frost has no access insures as perfect rest as can be had. But that Nature will have her way is shown by the circumstance, that bulbs and tubers (for example, of Potatoes) will sprout in dark cellars in spite of our care.

So far, then, as relates to "directions for resting plants which may be of service to an amateur window-gardener," I should say that he should make himself acquainted with general principles, and, with that knowledge as a basis, with a little zeal and more patience, he will soon learn to apply them successfully, and in so doing get to learn the habits and the natural rest-season of each plant or species. The more nearly we can cultivate our plants as "annuals" the more successful we are likely to be; this, of course, involves a rhythmical alternation of activity and dormancy.

As to books which treat of this subject on this side of the Atlantic, we still turn to Lindley's "Theory of Horticulture" and Thompson's "Gardener's Assistant"; but more recent information is contained in the Introduction to the "Epitome of Gardening" (Black) and in "Plant Life" (Bradbury & Co.).

London. *Maxwell T. Masters.*

Notes.

As it is now autumn in the southern hemisphere apples are coming to the English market from Tasmania. The fruit is said to be of excellent quality, and it arrives in first-rate condition.

The death is announced of Sir John Henry Lefroy, a distinguished officer of the English army, Governor of Bermuda from 1872 to 1877, of which he published an account including a catalogue of Bermuda plants with notes on their distribution

and economic properties and uses. This, under the title of "The Botany of Bermuda," was republished in the *Bulletin of the National Museum of the United States*, No. 25.

Mr. F. H. Vaslett records the fact in *Zoe* that the European Daisy (*Bellis perennis*) has succeeded in establishing itself in one of the glens of Mount Tamalpais, near San Francisco.

Part XVI. of the "Flora of British India," by Sir J. D. Hooker, completing the fifth volume of that great work, has appeared. The Orchids are finished in it.

Several well-rooted young Fig-trees lately arrived at Auburn, California, from Smyrna. The trees, together with some cuttings, were in excellent condition. They came from the Aidin district and are said to be the true Smyrna variety.

A few of the fine dates which come from Africa attached to the stalk on which they grew are still coming in, and among the rarer fruits from the West Indies are a few Star Apples (*Chrysophyllum Cainito*), the red and yellow Mammee Apples (*Mamea Americana*) and Sapodilla Plums (*Sapota Achras*).

Mr. Sereno Watson, the Curator of the Herbarium of Harvard University, and Dr. E. von Regal, Director of the Imperial Botanic Garden at St. Petersburg, were elected foreign members of the Linnæan Society at the meeting held on the first day of May. The number of foreign members admitted to the Society is small, and the honor of foreign membership is considered one of the chief marks of consideration a foreigner can receive at the hands of British naturalists.

The flowers of *Magnolia Fraseri*, which have been open for a week near Philadelphia, are of a light canary color, and with almost the same exquisite fragrance which characterizes those of the Swamp Magnolia. A large specimen of this species still stands in Bartram's Garden, and Mr. Joseph Meehan writes of two others in Germantown, one of which is thirty-five feet high, and, although it flowers profusely every year, it never perfects seeds. We have also received from the Meehan Nurseries a flowering branch of a variety of *Viburnum plicatum*, known as Rotundifolium. It seems quite distinct, with reddish twigs and tinted leaves, and comes into flower several days earlier than the typical plant.

Rhododendron Vaseyi, of which a figure and description were published in the first volume of Garden and Forest, more than sustains its promise as a garden plant. It has flowered profusely this year in the Arnold Arboretum, where it proves perfectly hardy, and where, with the exception of the Rhodora, it is several days earlier than other plants of its class. The bright pink color of the flowers, not very different, although rather paler than that of a good La France Rose, is quite unlike that of any other Azalea. It now seems safe to say that this plant, long overlooked in the valleys of the Blue Ridge, will prove a garden plant of the first class. It may be expected, too, to exert considerable influence in the production of a new early flowered race of Azaleas.

Mr. C. L. Anderson describes in the second number of *Zoe*, the new California monthly, a curious monœcious Willow which he finds in his garden at Santa Cruz, and which, moreover, is not uncommon among the trees of that part of California. He first considered it a form of *Salix lasiandra*, but having found several trees with male and female flowers on the same ament, he reached the conclusion that it is a hybrid between *S. Babylonica* and *S. lasiandra*, the former having been introduced early into California, where there are now many fine, large specimens. The supposed hybrid trees have sometimes a weeping habit, so that they can hardly be distinguished from the genuine Weeping Willow, and in others they closely resemble in habit the California species.

The large flowered form of the Scarlet Hawthorn (*Cratægus coccinea*, var. *mollis*) was a conspicuous feature in the middle of May on the wooded banks of Westchester County. This is the earliest of our native Thorns to flower and this year the plants have been so covered with flowers as to light up the landscape in every direction. This Thorn is not only the earliest of our species to flower here, but it is the largest of the Thorns of the northern states. Trees twenty to thirty feet high are not rare. The flowers are large and handsome. The fruit, which ripens early, is large and brilliantly colored and the ample foliage turns bright before it falls in autumn. The habit of the tree is excellent and it should be cultivated much more frequently than it is. The only drawback to it is in its liability to be attacked by a fungus which sometimes disfigures the foliage and fruit late in the season.

One of the most beautiful and effective plants which have lately flowered in Central Park is the Black Haw (*Viburnum prunifolium*), a large, tree-like shrub which is one of the native plants of this vicinity, although much more common further south. It was planted long ago, fortunately in large numbers, in the park, where many specimens have now grown to a large size; and this year they were unusually full of their large, flat clusters of white flowers, which, later in the season, will be followed by bright blue-black berries. The Black Haw, as it appears in the park this year, is another example of the great value as ornamental plants of many of our little known native shrubs, among which are to be found the safest and therefore the best material for the decoration of parks and pleasure-grounds in the region where they grow naturally. Our flora contains some of the most beautiful trees and shrubs known to man, but Americans, or those who plant gardens, are only just beginning to realize the fact and to learn that they must depend on the native products of the soil for the best material for their plantations. A desire to imitate what is done in other countries has certainly had some deplorable results in retarding the development of American gardening.

The meeting held in Boston on Saturday last, at the invitation of the Appalachian Mountain Club, to consider the best means of preserving fine scenery and places of historical interest, was attended by persons representing all parts of Massachusetts. Mr. George C. Mann, President of the Club, spoke of the 400 cordial answers to the invitation which had been received, and he mentioned especially the replies of Governor Brackett, Mr. Whittier, Mr. Francis Parkman, Colonel J. W. Higginson and other distinguished citizens. Addresses were made by Mr. Charles Eliot, Mr. J. B. Harrison, Hon. Leverett Saltonstall, Professor Norton and Judge Shurtleff. The chairman, President Sprague, of the State Senate, was authorized to appoint a committee, with power to add to their number and in such ways as may seem advisable to effect the establishment of a Board of Trustees empowered to acquire land and hold for the benefit of the public beautiful or historic spots in any part of the commonwealth. The following persons were appointed on the committee: President Francis A. Walker; Miss Sarah H. Crocker, Miss Marian Talbot and Mr. George Wigglesworth, of Boston; Dr. Henry P. Walcott and Mr. Charles Eliot, of Cambridge; Professor C. S. Sargent, of Brookline; Mr. Henry M. Lovering, of Taunton; Hon. Henry L. Parker, of Worcester; Judge William S. Shurtleff, of Springfield; and Dr. J. F. R. Adams, of Pittsfield. Subscriptions to a working fund may be sent to Mr. George Wigglesworth, 89 State Street, Boston.

The annual meeting of the City Parks Association of Philadelphia was held last week on the spacious grounds of Mr. Justus C. Strawbridge, in Germantown, and a most encouraging occasion it proved, with Colonel McClure in the chair and admirable addresses by Dr. S. Weir Mitchell and Mr. Hampton L. Carson. The purpose of this association, which was organized a few years ago under the name of "The Philadelphia Open Space Association," is to open up small parks and squares in the thickly populated portions of the city, and to secure for public use open spaces on the outskirts of the city's built up area, which otherwise would soon be covered over with buildings. The association under its present name has been organized only two years, but with the active aid of the public-spirited men and women who form its membership the city authorities have located the following small parks: Stenton Park, of about thirteen acres, including the homestead of the Logan family, near Wayne Junction; Weccacoe Square, at the corner of Queen and Cobb Streets, the only spot not built upon in the Third Ward; Bartram's Garden, the ground of the famous botanist of the last century, with its collection of rare trees and shrubs still preserved; Northwood Park, with its picturesque brook and meadow, in the neighborhood of Frankford; Juniata Park, a wooded height overlooking a creek, but immediately adjoining the vast manufactories of the Twenty-fifth Ward; and Riverview Park, giving a view of the Schuylkill from the heights above the Pennsylvania Railroad, near Thirty-second Street. In addition to this public action private beneficence has added to the number of parks by the gift to the Association of the Starr Garden, on St. Mary's Street, by Miss Anna Hallowell; the present to the city of a square of ground, in the southern section, by Mr. Edward C. Knight; and of a tract of about five acres, near the junction of Haines Street with the Chestnut Hill Branch of the Reading Railroad, to be known as Waterside Park, by the heirs of the late Reuben Haines. The public spirit and civic pride of Philadelphia have passed into a proverb, but these qualities have never been more worthily exemplified than in the work of this model organization.